UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
NEW ENGLAND - REGION I
ONE CONGRESS STREET, SUITE 1100
BOSTON, MASSACHUSETTS 02114-2023

FACT SHEET

DRAFT NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT TO DISCHARGE TO WATERS OF THE UNITED STATES

NPDES PERMIT NO: MA0003590

PUBLIC NOTICE DATE:

NAME AND ADDRESS OF APPLICANT(S):

Massachusetts Bay Transportation Authority
10 Park Plaza
Boston, MA 02116-3974

Massachusetts Bay Commuter Railroad Company
89 South Street, 8th Floor
Boston, MA 02111

NAME AND ADDRESS OF CO-PERMITTEES:

Boston & Maine Corporation
Iron Horse Park
High Street
North Billerica, MA 01862

City of Somerville
Department of Public Works
1 Franey Road
Somerville, MA 02145

Commonwealth of Massachusetts
Department of Conservation
and Recreation
251 Causeway Street
Boston, MA 02114

RECEIVING WATER: Unnamed Tributary, locally known as the Millers River (Charles River Watershed, MA 72-31)

CLASSIFICATION: Class B

I. PROPOSED ACTION

The Massachusetts Bay Transportation Authority (MBTA) and Massachusetts Bay Commuter Railroad Corporation (MBCR) have applied to the U.S. Environmental Protection Agency (EPA) for the re-issuance of the National Pollutant Discharge Elimination System (NPDES) permit, MA0003590, to discharge into the designated receiving water, the Millers River.

The current permit was originally issued to the Boston & Maine Corporation (B&M) on November 9, 1976 and became effective forty-five (45) days later. The permit expired on November 30, 1981, however, the permit has continued in effect as allowed at 40 CFR 122.6 because a timely and complete application was received from B&M on June 17, 1981. An updated application was received in June 1987 at EPA's request. The permit was transferred to Amtrak on June 24, 1994. On November 18, 1998, the permit was transferred to the MBTA. EPA received a letter from the MBTA dated May 3, 2003 requesting that the permit be "automatically transferred" to the contract operator of the MBTA commuter rail system, MBCR. EPA denied that request by letter dated June 24, 2003 and required that a new application be submitted to EPA within 60 days. Following several extensions of the deadline, a new

application was submitted on September 22, 2004 and subsequent additions, revisions and clarifications of the application were submitted on October 4, 2004, May 10, 2005, June 2, 2005 and April 14, 2006. Several of these supplements were provided in response to EPA requests for clarification. The draft permit, after it becomes effective, will expire five years from the effective date of issuance.

Information used to prepare this fact sheet includes information in the permit file, previous permit applications and responses to Section 308 information requests issued to the MBTA and MBCR on December 22, 2003, Guilford Transportation Industries, Inc, Guilford Rail Systems (Guilford) on May 26, 2004, B&M on May 27, 2004 and August 18, 2005 and administrative orders issued to MBTA and MBCR on June 22, 2004 and B&M on July 16, 2004. This is a large site with a complex history which involves numerous State, local and private entities. There are still gaps in our understanding of the site history, site conditions, and ownership of facilities. We welcome comments during the public comment period which will further our understanding and allow us to fine tune the permit requirements.

II. TYPE OF FACILITY AND DISCHARGE LOCATION

The discharge is from an oil/water separator which was originally built in the 1960s to treat process wastewater and storm water runoff from a railroad maintenance facility (Boston Engine Terminal (BET)), surrounding railroad yards in Boston, Cambridge and Somerville, and residential areas in Somerville and Boston. Since the issuance of the existing permit, significant changes have occurred at the site including the construction of a new train maintenance facility (Commuter Railroad Maintenance Facility (CRMF)) and the demolition of the BET facility. With the construction of the CRMF, the process wastewater discharge was removed and is now sent to the Deer Island Treatment Plant; therefore, the discharge is believed to consist solely of storm water. The discharge consists of stormwater drainage from approximately 350 acres of land in Boston, Cambridge and Somerville to an unnamed tributary to the Charles River, locally known as the Millers River (See Figure 1). The facility's discharge outfall is listed below:

Outfall	Description of Discharge	Outfall Location
001	Storm water	Millers River

III. DESCRIPTION OF DISCHARGE

A quantitative description of the discharge in terms of significant effluent parameters based on recent discharge monitoring reports (DMRs), October 2001-December 2005, and the effluent data submitted in the current application is shown on Tables 1 and 2 of this fact sheet, respectively.

IV. LIMITATIONS AND CONDITIONS

The effluent limitations and monitoring requirements may be found in the draft NPDES permit.

V. SITE AND PERMITTING HISTORY

In 1971, an application for a discharge to navigable waters was submitted to the Army Corps of Engineers (ACOE) by B&M for the BET facility. The Federal Water Pollution Control Act Amendments of 1972 transferred the authority to issue discharge permits from the ACOE to the EPA. In 1976, EPA issued an NPDES permit to B&M based on the 1971 application. According to that application, the primary operations at the BET were fueling, sanding, watering, cleaning and light repairs to diesel locomotive and Budd passenger cars. At that time, fueling was done in the open and it was common for fuel and oil to be spilled on the ground and ultimately flushed to the oil/water separator during rainfall events. The cleaning operations used a phosphate solution

to wash oil, and other contaminants from the equipment. All wash water was also flushed to the oil/water separator. The watering operation used a sodium chromate solution for cooling the locomotives. According to the application, the watering solution was periodically dumped on the ground. The 1971 application also noted that drainage from a large part of Somerville which originated north of Washington Street was connected to the BET drainage system.

The 1971 application lists three Massachusetts General Law (MGL), Chapter 91 licenses; No. 968 (dated 12/4/1928), No. 2168 (dated 9/23/1943) and No. 2683 (dated 8/22/1944) as approvals received from the Commonwealth of Massachusetts related to the subject discharge. Under Chapter 91, the Commonwealth "regulates activities on both coastal and inland waterways, including construction, dredging and filling in tidelands, great ponds and certain rivers and streams."[1] In this case, the Chapter 91 licenses regulated the sequential filling of the Millers River landward and the construction of the drainage system that ultimately replaced all but 1000 feet of the Millers River (See Figure 2). The 1944 license, No. 2683, specifically required that, "*if, at any time, the installation prove inadequate to provide the necessary drainage for the area and for the storm water overflow which the City of Somerville is authorized to construct, the licensee shall, at its own expense make whatever changes may be need to provide adequate drainage."* All filling approved by these licenses was completed prior to the submittal of the 1971 application.

In 1975, the Metropolitan District Commission (MDC, now the Massachusetts Department of Conservation and Recreation (DCR)) began construction of the New Charles River Dam. The dam, completed in 1978, is located on the Charles River, downstream of the confluence with the Millers River. Standard operation of the dam maintains the Charles River at a constant stage, which prevents the natural tidal flushing of the Millers River which occurred prior to the construction of the dam. This hydraulic change also restricted the flow from the oil/water separator via the three 48 inch pipes to the Millers River. As a result, a weir structure with two 250 gallon per minute (gpm) pumps was constructed in 1976 by the MDC (personnel communication, Mike Hornbrook, MWRA, 2005) to pump flows from the oil/water separator to the Millers River (See Figure 3). The weir structure and pumps are located on B&M property via an easement held by the MDC (now DCR). The original two 250 gpm pumps are currently inoperable, and the existing pumping capacity is provided by two 80 gpm temporary submersible pumps, which are connected to float switches and pump from chamber 4 to chamber 5, which is connected to chamber 6 by a 48-inch opening in the wall between the chambers[2]. The three 48-inch pipes which convey the flows to the Millers River are fed by chambers 5 and 6.

It was also in 1975 that the MDC began Phase 1 of the Charles River Marginal Conduit Project, Interceptor Sewers. This project was designed, in part, to convey combined sanitary and storm water flows from Rutherford Avenue, Boston (BOS028) to the then proposed Prison Point CSO facility (Figure 4). The Charles River Marginal Conduit was originally constructed with a connection which allowed combined sewer flows from BOS028 to be discharged to the weir structure and to the Millers River in the case of a problem at the Prison Point facility. In 1998, the MWRA permanently sealed the overflow. All flows in the Charles River Marginal Conduit now flow to the Prison Point CSO facility.[3]

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[1] MassDEP, "Waterways - Chapter 91 Overview", March 7, 2006, <http://www.mass.gov/dep/water/resources/about01.htm>.

[2] Letter re: NPDES Permit Application #MA0003590, Commuter Rail Maintenance Facility – Response to Request for Information, Scott Darling, III, Environmental Counsel, MBTA, April 14, 2006.

[3] Memorandum re: Blocked off overflow to Millers River (BOS028) from Richard E. Burns, Sr. Field Inspector, Transport, MWRA to Charles W. Lombardi, Director, Transport, MWRA, May 26, 1998.

In 1976, the MBTA acquired the Boston Engine Terminal and the adjacent rail lines and related facilities which were necessary to operate their Commuter Railroad Operations.

In 1990, the MBTA submitted an Environmental Notification Form (ENF) to the Massachusetts Environmental Policy Act (MEPA) Office, which began the permitting process for building of a new MBTA maintenance facility known as the Commuter Railroad Maintenance Facility (CRMF). This facility was designed to replace the Boston Engine Terminal (BET), which was later demolished. As part of the proposed CRMF project, the MBTA proposed to replace the drainage system and replace it with a drainage system that would address the long standing flooding problems in the area. The drainage plan included the replacement of the drainage systems on the Fitchburg Main Line, the New Hampshire Main Line and the Haverhill Line (Figure 5). Drainage from the Fitchburg Main Line and the Upper Main Drain were to be collected north-west of the oil water separator. The MBTA was then to build the Lower Main Drain which was proposed as a 10 x 10 foot gravity box culvert discharging at the head of the remaining length of the Millers River. A 10 x 10 foot relief culvert was also to be constructed from the Millers River to the Charles River. The project was approved by means of a MEPA certificate which was issued on August 24, 1990.

A supplemental drainage study was prepared for the MBTA in November of 1990[4]. The study evaluated alternative drainage plans for the area. The option recommended at that time included a 340 mgd storm water pumping station and a 96-inch force main. The recommendations of this study were also confirmed in a 1995 study[5].

In 1996, the MBTA submitted a "Revised" Notice of Project Change (NPC) for the North Terminal Area, Lower Main Drainage Facilities[6] to the State MEPA Office. The NPC proposed to change the Lower Main Drain (outlet structure) project by adding additional oil/water separators, a large pump station and relocating the discharge from the Millers River directly to the Charles River. The NPC stressed that completion of the Lower Main Drain was critical to realizing the full effect of the drainage improvements made by the construction of the upstream drainage systems. A most critical change in the NPC was the need for a very large pump station to handle the 50 year storm (~515 mgd for an expected duration of 15 to 30 minutes). It was also noted in the NPC that the construction of a pump station would allow for the entire upstream drainage system to function as an open channel. The NPC was approved via a MEPA certificate on January 15, 1997.

As of now, the upper drain lines have been constructed, and in some cases enlarged, however, the Lower Main Drain project has not been constructed nor was an updated NPC submitted to the MEPA office. Flows from the Fitchburg Main Line drainage system and the Upper Main Drain enter the oil/water separator and are discharged via the two 80 gpm submersible pumps to the three (3), 48-inch pipes to the Millers River. There have been discussions between MBTA and DCR regarding the replacement of the original 250 gpm effluent pumps, thereby increasing discharge capacity and reducing upstream flooding. However, there is evidence that the outfall pipes are at least partially blocked with sediments, and that increasing the pumping capacity may

[4] "North Terminal Area Supplemental Drainage Study, Technical Memorandum 17;" Parsons Brinckerhoff/Seeyle Stevenson for MBTA, November 1990.
[5] "Flow Model Memorandum Report for North Terminal Area, Preliminary Design of Lower Main Drainage Facilities," Prepared by Parsons Brinckerhoff/Seeyle Stevenson for MBTA, July 1995.
[6] "Revised" MEPA – Notice of Project Change, North Terminal Area, Lower Main Drainage Facilities, EOEA 8287, Prepared by Parsons Brinckerhoff/Seeyle Stevenson for MBTA, September 1996.

either be ineffective, or could result in the release of large quantities of the sediments into the receiving water. The Massachusetts Department of Environmental Protection (MassDEP) has told the MBTA that they can not increase the capacity of the pipes without MassDEP approval.

Elements of the new upper drain system, those which are related directly to the CRMF, were designed to provide treatment prior to the permitted oil/water separator for storm water flows associated with the external operations at the CRMF (Figure 6). Adjacent to both the west and east sides of the locomotive maintenance area, where trains enter and exit the building, are a set of four oil drip pans, an oil/water separator and an underground oil holding tank. The treated storm water then flows to the permitted oil/water separator and ultimately to the Millers River. Rinse water drip pans are located adjacent to the train wash area, again where trains enter and exit the building. Additional oil drip pans are located at Yard 14 in the southern portion of the CRMF site, where trains appear to be parked. All these elements are located prior to the oil/water separator but flow to the separator and then discharge to the Millers River via the three 48-inch pipes.

VI. PERMIT BASIS AND EXPLANATION OF EFFLUENT LIMITATION DERIVATION

A. PROCESS DESCRIPTION

For the purposes of the NPDES permit program, "facility" means any NPDES point source or any other facility or activity (including land or appurtenances thereto) that is subject to regulation under the NPDES program. In this case, the facility is considered the entire conveyance system which contributes flow to the oil/water separator, the oil/water separator and weir structure (chambers 1-6) and the three 48-inch pipes from the separator/weir complex to the point of discharge. The actual treatment element of this facility is further detailed below.

According to information submitted by the MBTA/MBCR and information gathered by EPA during several site visits and inspections, the oil/water separator is composed of six (6) chambers (See Figure 6). Chamber 1 was designed as a flow reducer and has corrugated tin influent and effluent pipes and a permeable floor. An inspection of chamber 1 showed that the influent pipe and the effluent pipe are at the same elevation. Absorbent booms were observed in chamber 1 during the July 2006 inspection. There are no structural means of separation in this chamber.

Chamber 2 has a corrugated tin influent pipe which is reported to be filled with gravel and a dirt floor (it was not possible to examine the inlet to chamber 2 in July 2006). This chamber is separated from chamber 3 by a fabric "weir" which hangs down between the chambers. During the July 2006 inspection, EPA observed that the "weir" did not cross the entire surface of the chamber, and therefore, did not inhibit sheen from passing from the inlet, through the chambers to the outlet. Absorbent booms were observed at the outlet from chamber 3. The water in chambers 2 and 3 appeared to be stagnant.

According to information provided by the permittee, a portion of the influent then flows to chamber 4 beneath the storm water overflow piping. Another portion flows directly to chamber 6. Chamber 4 serves as a reservoir for the submersible pumps. During normal conditions, water is pumped from the bottom of chamber 4 to the top of chamber 5 (The DCR pump and weir structure). Chamber 5 feeds flows to one of the three 48" culverts which discharge to the Millers River. The other two 48" culverts are fed by chamber 6.

During the July 2006 inspection, EPA observed that pumping from chamber 4 was at the surface and not at the bottom of the chamber as reported by the permittee. It was also noted that only one of the two pumps was pumping. The second pump was set for a higher water level. Also, the 48

inch circular flap valve shown in Figure 6 was not observed, but two smaller pipes connected chambers 4 and 5 were observed above the water elevation.

Chamber 6, which is located under six metal plates, was also inspected by EPA in July 2006. The water level in the chamber was very low and nearly stagnant.

Per the permittee, there is no access to the three 48-inch pipes between the separator/weir complex and the point of discharge. It has been assumed in numerous studies that the three culverts are clogged to some degree with sediments. Given the historic and current activities upstream of separator/weir complex and flow volumes significantly in excessive of the design capacity, it is theorized that the sediments in the outfall pipes may be contaminated.

The existing permit requires effluent samples to be collected at the oil trap outlet. Based on the April 14, 2006 response from the MBTA, it is impossible to collect samples at this location. Effluent samples are currently collected from the discharge hose of the 2-inch temporary submersible pumps.

The majority of flows conveyed to the oil/water separator are transported via two (2) major conveyances, the Somerville Culvert and the Fitchburg Main Line drain (Figure 5). The Somerville Culvert is a 5' X 5.5' culvert, located along the northeast portion of the site, and carries flows from a portion of Somerville to the oil/water separator. According to the application, approximately 71 acres of Somerville was thought to be drained via this line.

In the April 14, 2006 response to the request for information, MBTA reported approximately 102 acres of Somerville and 15.4 acres of Charlestown drain to the oil/water separator. Presently, there is no flow measurement device on the discharge; flow measurements reported on the discharge monitoring reports are monthly estimates based on the capacity of the 2-inch temporary submersible pumps running 24 hours per day (80 gpm x 1440 minutes/day = 115,200 gpd).

Previous drainage studies[7,8,9] each of which define the area tributary to outfall 001 as the area bounded by "the west bank of the Charles River between McGrath-O'Brien Highway and the MBTA Orange Line and extends northwesterly to Washington Street", estimate the contributing drainage area to be significantly larger than 160 acres, however, none of the reports are in agreement. The 1990 report stated, "Even though the Study Area does not encompass all of the area tributary to the Millers River Basin, the proposed drainage system must have sufficient capacity to carry the storm flows from the entire 440 acres in the watershed area (p.1-3)". The 1995 report estimates the drainage area to be 478 acres (p. 1-2). The 1996 Notice of Project Change approximates the drainage area as 327 acres. (p. 3). In preparing this permit, EPA calculated the drainage area, as defined above, as approximately 350 acres (See Figure 2). Using the rational method, EPA estimated the peak flow from this drainage area for the 2 year, 1 hour storm as approximately 200 mgd.

$Q = CIA$

Q = peak rate of runoff
C = Runoff coefficient

[7] "North Terminal Area Supplemental Drainage Study", 1990, p.1-3.
[8] "Flow Model Memorandum Report for North Terminal Area", 1995, p. 1-2.
[9] "Revised" MEPA-Notice of Project Change, 1996, p. 3.

I = Average intensity of rainfall in inches per hour for the time of concentration (Tc) for a selected frequency of occurrence or return period
A = Drainage area in acres

C = 0.8 (impervious)
Tc = 1 hr, assuming a velocity of 1.4 feet per second, and a distance of 1 mile (5280ft/1.4 fps = 3771 sec or approximately 1 hr)
I = 1.2 in/hr (2yr, 1 hour storm)
A = 350 acres

Q = 0.8 (1.2) (350)
Q = 336 cfs (217 mgd)

The drainage area estimate and the runoff calculation do not include the potential drainage areas (i.e. Charlestown, 15.4 acres) located outside of the previously defined study area.

Flow metering conducted by MBTA/MCBR during September of 2004 confirms high flow rates in the upper part of the collection system and significant flow restrictions in the lower part of the system. Flows were measured at five locations in the drainage system (see Figure 6). S1 (MHS-1) measured flow from an area north of the CRMF, S2 (MHS-2) measured track drainage from an area immediately adjacent to the west side of the CRMF, S3 (MHS-3), measured off-site flow from the Fitchburg Line, S4 (also called MHS-4) measured flow in an open section of the Somerville Box Culvert, with an upstream drainage area of at least 70 acres, and S5 (also called MHS-5) measured the discharge from the oil water separator. The flow meter was located downstream of the oil/water separator and measured the flow from the two 2-inch discharge pumps.

Station	**September 8, 2004**		**September 9, 2004**	
	Peak flow (gpd)	**Total Flow (gal)**	**Peak flow (gpd)**	**Total Flow (gal)**
S1	60	15216	60	20829
S2	720	117709	360	132155
S3	740	-30321	930	-169459
S4	23130	5588587	25010	8353080
S5	Not available	Not available	150	138981

The flows recorded on these two dates are the result of a rain event totaling 1.87 inches which occurred from September 8, 7:00 AM to September 9, 4:00 PM. As can be seen, the flow at S5 was not reported for September 8 but the flow on September 9 clearly shows higher flows in the upper part of the collection system than are reported at the discharge indicating surcharging of the collection system. The negative flows at Station S3 are indicative of flow reversal in the system, (i.e. flow is moving upstream), clearly the result of a downstream restriction.

It should be noted that there is a long history of flooding along the Fitchburg Line section of track, and as part of the 308 Request, the MBTA submitted a list of dates, 13 days between January 1998 and April 2004, when the Fitchburg Line tracks were flooded to a degree that train service was affected.

It should also be noted that in October 2005, EPA staff twice observed trucks, labelled MBCR, manning pumps which were discharging via three (3) pvc pipes (2 – 8" and 1- 4") onto Route 28 in Somerville, just west of the Cambridge line. Flow from this discharge was observed entering

catch basins just east of the discharge location. It is believed that these catch basins flow to a 96" combined sewer which flows to the Prison Point CSO facility. This discharge may need a permit from the City of Somerville and/or the MWRA.

The MBTA/MBCR has interpreted the inconsistencies in the flow metering data as attributable to infiltration/exfiltration and surcharges in the collections system and the oil/water separator. MBTA/MBCR has described at least one significant flow restriction in the collection system. An inspection at manhole 005 (MH005 in Figure 5) confirmed that there is a 72-inch drain entering the manhole structure and a 24-inch line leaving the structure, and also a weir in the manhole structure. Both the weir and the decrease in pipe size would serve to bottleneck the system at this point and may be the cause of surcharges upstream in the collection system.

Although acknowledging the questionable integrity of the oil/water separator, the MBTA/MBCR does not have a definitive plan for its repair or replacement. Logistical problems contributing to difficulty in repairing or replacing the separator include: the majority of the property is owned by the Boston and Maine Corporation, and the oil/water separator is located within the bounds of a Massachusetts Department of Environmental Protection, Massachusetts Contingency Plan site, Release Tracking Number (RTN 3-112277). In 2000, an open-ended delay request was submitted to MassDEP on behalf of B&M and therefore, the Phase IV report does not need to be submitted until the site is redeveloped. At present, the majority of the B&M property is being redeveloped however, according to B&M's response to EPA's 308 Request, this area is not part of the redevelopment plan.

Permittees – Given the complicated land and facility ownership histories, and the numerous contributors to the oil/water separator, EPA has determined that it is necessary to co-permit several parties. The MBTA is named as the primary operator of the facility and part owner of the property where the oil/water separator is located; MBCR is named as the MBTA's long-term contract operator, Guilford is named as the primary owner of the property where the oil/water separator is located and a contributor of flows to the site (according to information provided by MBTA/MBCR), DCR (formerly MDC) is named as builder/operator of the weir and pumping structure and as the holder of a land easement for that portion structure, and the City of Somerville is named as a major contributor to the facility.

EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

1. Overview of Federal and State Regulations

The Clean Water Act (CWA) requires that discharges satisfy both minimum technology and water quality requirements. The minimum technology requirements which are presently applicable are the Best Practical Control Technology currently available (BPT) Section 301 (b)(2)A of the Clean Water Act, Best Conventional Pollutant Control Technology (BCT) Section 301 (b)(2)E and Best Available Technology Economically Achievable (BAT) Section 301 (b)(2)A.

No national effluent guidelines have been established for storm water runoff from this type of facility, although, as will be discussed further in the pollutant specific discussions, EPA has established benchmark concentrations for certain pollutants for this industrial category in the Storm Water Multi-Sector General permit, which has been used to identify potential pollutants of concern for this type of discharge. Therefore, the

technology based effluent limitations have been developed on a case by case basis using Best Professional Judgment as provided in Section 402(a)(1) of the CWA.

Section 402(p) of the Clean Water Act requires that EPA issue individual NPDES permits for storm water discharges which were permitted prior to February 4, 1987, 40 CFR §122.26(a)1(i).

2. Water Quality Standards; Designated Use; Outfall 001

The Millers River (Unnamed Stream MA72-31) is not specifically listed in the Massachusetts Surface Water Quality Standards (314 CMR 4.00). Inland waters not listed in the Massachusetts Surface Water Quality Standards are designated Class B, High Quality Waters. [See 314CMR4.06 (2)]. Class B waters are designated as a habitat for fish, other aquatic life, and wildlife, and for primary and secondary contact recreation. They shall be suitable for irrigation and other agricultural uses and for compatible industrial cooling and process uses. The waters should have consistently good aesthetic value.

OUTFALL 001 - CONVENTIONAL POLLUTANTS

Flow - The 1971 application notes that the maximum flow into the oil/water separator is 125,000 gallons per day; however, as noted previously, this capacity is well below the flow quantities which run off the site during wet weather events. The draft permit requires MBTA/MBCR to submit to EPA and MassDEP a study which evaluates the hydraulic capacity of the collection system, the treatment system and the outfall system and describes measures that must be taken to ensure that all flows discharging through outfall 001 receive adequate treatment. The study shall also locate any other discharge points from the site, including point source discharges directly to waters of the United States and connections to drainage systems owned and operated by others. (See the STORM WATER POLLUTION PREVENTION PLAN, Collection System and Facility Evaluation section on page 13).

The draft permit requires that each contributor of flows to the oil/water separator estimate their flows by determining the area under their control which discharges to the collection system and estimate the flow based on a design storm (2 year/1 hour storm). The MBTA/MBCR, as the primary operators of the facility must continuously measure the total daily flow into Chamber 2 and out of Chamber 4 to assure all influent is treated prior to discharge.

Total Suspended Solids (TSS) - The draft permit requires the permittee and co-permittees to develop Storm Water Pollution Prevention Plans (SWPPP). TSS is a common pollutant found in storm water. The permittee, MBTA/MBCR is required to monitor TSS to ensure that the permittees and co-permittees are successfully implementing the best management plans (BMPs) adopted as part of the SWPP plans. The permittee shall monitor the discharge for TSS once per month during wet conditions as defined in the draft permit beginning 120 days after the issuance of the permit when the Storm Water Pollution Prevention Plan shall have been be developed and implemented.

Oil & Grease - The draft permit limit for oil & grease remains as 15 mg/l for a daily maximum with a monthly monitoring frequency. This technology-based limit was determined using BPJ and is the same limit as in the existing permit.

Fecal Coliform Bacteria – The draft permit requires the permittee and co-permittees to develop Storm Water Pollution Prevention Plans (SWPPP) which must include programs for identifying and eliminating source(s) of bacterial contamination. The permittee, MBTA/MBCR is required to monitor fecal coliform bacteria to ensure that the permittees and co-permittees are successfully implementing the best management plans (BMPs) adopted as part of the SWPP plans. The permittee shall monitor the discharge for Fecal Coliform Bacteria once per month during wet conditions as defined in the draft permit beginning 120 days after the issuance of the permit when the Storm Water Pollution Prevention Plan shall have been be developed and implemented.

OUTFALL 001 - NON CONVENTIONAL POLLUTANTS

Chemical Oxygen Demand (COD) - The Storm Water Multi-Sector General Permit for Industrial Activities (MSGP) (65 FR 64746) establishes, Chemical Oxygen Demand (COD) as a pollutant of concern. In the MSGP, EPA established "benchmark" concentrations for the pollutant parameters on which monitoring results had been received. "Level of concern" is defined as the concentration at which a storm water discharge could potentially impair, or contribute to impairing, water quality or affect human health from ingestion of water or fish. The benchmark value established for COD is 120 mg/l. A COD value of 41 mg/l was reported in the 2004 application.

Although reported value is less than the benchmark, EPA recommends monitoring to ensure that the facility successfully implements a Storm Water Pollution Prevention Plan. The draft permit requires the applicant to monitor the discharge for COD quarterly beginning 120 days after the issuance of the permit when the Storm Water Pollution Prevention Plan should be developed and in place.

The permittee may request a reduction in monitoring following one (1) full year (12 months) of consecutive average monthly COD values less than the benchmark value of 120 mg/l.

Iron -Using the Storm Water Multi-Sector General Permit for Industrial Activities (MSGP) (65 FR 64746) as guidance, iron is determined to be a pollutant of concern in this discharge. In the MSGP, EPA established "benchmark" concentrations for the pollutant parameters on which monitoring results had been received. "Level of concern" is defined as the concentration at which a storm water discharge could potentially impair, or contribute to impairing, water quality or affect human health from ingestion of water or fish. The benchmark value established for iron is 1 mg/l. An iron value of 5.2 mg/l was reported in the 2004 application. Similar concentrations (2.4 mg/l – 6.5 mg/l, average = 5.4 mg/l, n= 5) were reported for samples collected within the treatment system and in the receiving water during the July 2006 EPA sampling inspection.

Following the policy set forth in the MSGP**,** EPA recommends monitoring to ensure that the facility successfully implements a Storm Water Pollution Prevention Plan. The draft permits requires the applicant to monitor the discharge for iron quarterly beginning 120 days after the issuance of the permit when the Storm water Pollution Prevention Plan should be developed and in place.

The permittee may request a reduction in monitoring following one (1) full year (12 months) of consecutive average monthly iron values less than the benchmark value of 1 mg/l.

Total Magnesium - Using the Storm water Multi-Sector General Permit for Industrial Activities (MSGP) (65 FR 64746) as guidance, total magnesium is a pollutant of concern in this discharge. In the MSGP, EPA established "benchmark" concentrations for the pollutant parameters on

which monitoring results had been received. "Level of concern" is defined as the concentration at which a Storm water discharge could potentially impair, or contribute to impairing, water quality or affect human health from ingestion of water or fish. The benchmark value established for total magnesium is 0.0636 mg/l. A total magnesium value was not reported in the 2004 application. Samples collected at various points in the treatment system and receiving water during the 2006 sampling inspection ranged between 10 mg/l – 11 mg/l (average=10.8 mg/l, n=6).

Following the policy set forth in the MSGP**,** EPA recommends monitoring to ensure that the facility successfully implements a Storm Water Pollution Prevention Plan. The draft permits requires the applicant to monitor the discharge for total magnesium quarterly beginning 120 days after the issuance of the permit when the Storm water Pollution Prevention Plan should be developed and in place.

The permittee may request a reduction in monitoring following four (4) quarters of total magnesium values less than the benchmark value of 0.0636 mg/l.

Manganese - Using the Storm water Multi-Sector General Permit for Industrial Activities (MSGP) (65 FR 64746) as guidance, Manganese is a pollutant of concern in this discharge. In the MSGP, EPA established "benchmark" concentrations for the pollutant parameters on which monitoring results had been received. "Level of concern" is defined as the concentration at which a storm water discharge could potentially impair, or contribute to impairing, water quality or affect human health from ingestion of water or fish. The benchmark value established for manganese is 1 mg/l. Data submitted by the permittee as part of the permit application is below the benchmark of 1 mg/l. Samples collected as part of the sampling inspections are slightly higher than the values submitted by the applicant but are still just less than the benchmark level (0.55 mg/l-0.91 mg/l, average=0.76, n=6).

Following the policy set forth in the MSGP**,** EPA recommends monitoring to ensure that the facility successfully implements a Storm Water Pollution Prevention Plan. The draft permits requires the applicant to monitor the discharge for manganese quarterly beginning 120 days after the issuance of the permit when the Storm water Pollution Prevention Plan should be developed and in place.

The permittee may request a reduction in monitoring following four (4) quarters of manganese values less than the benchmark value of 1 mg/l.

Total Phosphorus – Phosphorus levels in excess 0.2 mg/l where reported in the application. The permittee shall establish best management practices to reduce the levels of phosphorus in the discharge. The permittee shall monitor total phosphorus. A limit may be established in the future if there is reasonable potential to cause a violation of the water quality standards.

Benzene – The facility uses and stores diesel fuel on site and the drainage area has been the site of historic fuel spills. Diesel fuels contain benzene, toluene, ethylbenzene and xylene among other hydrocarbons (mixture of volatile organic compounds and polynuclear aromatic hydrocarbons). Benzene, as an indicator compound shall be limited to 51.0 micrograms per liter (ug/l). The monitoring frequency is quarterly.

Fuel refined petroleum products contain numerous types of hydrocarbons. Individual components of petroleum products partition to environmental media on the basis of their physical and chemical properties (e.g. solubility, vapor pressure). Rather than attempt to establish effluent limits for every compound found in storm water that may contain diesel fuel, limits are typically

established for the compounds that would be the most difficult to remove or demonstrate the greatest degree of toxicity. Generally, the higher the solubility of a volatile organic compound (VOC) in water, the more difficult it is to remove.

VOCs such as benzene, toluene, ethylbenzene and the three xylene compounds (BTEX) are normally found at relatively high concentrations in light distillate products, such as diesel fuel. Since many petroleum spills involve diesel fuel, a traditional approach for such spills has been to place limits on the individual BTEX compounds and/or the sum of total BTEX compounds.

Of these four compounds, benzene has one of the highest solubilities, is one of the most toxic constituents, and is found at relatively high concentrations in diesel fuels (290 mg/l)[10]. Because of the reasons mentioned above, benzene can be considered one of the most important limiting pollutant parameters found in diesel fuel. Building on this premise, benzene can be used as an indicator parameter for regulatory and characterization purposes for waste water and/or storm water, which may contain some diesel fuel. The primary advantage of using an indicator-parameter is that it can monitor the effectiveness of a treatment process and evaluate the potential impact on the environment.

EPA has included a quarterly monitoring frequency for benzene in the draft permit.

Priority Pollutants – Given the site history and site conditions, the EPA believes it is necessary to monitor the effluent for priority pollutants. The MBTA shall monitor the effluent from the oil/water separator for Priority Pollutants as listed at 40 CFR 423, Appendix A. The monitoring frequency is quarterly for the first year of the permit. EPA will review the data at the end of the first year and modify the permit to establish an effluent limitation or require additional sampling, if necessary.

VII. AMBIENT SAMPLING PLAN

As previously discussed, effluent samples for compliance with the existing permit are collected at the separator/weir complex. These samples, however, may not be representative of the discharge from the three 48-inch pipes given the unknown condition of the pipes, the unknown quality of the sediments in the pipes and the potential for pollutants to be discharged. Furthermore, during several rain events EPA staff have visually observed three boils breaking the surface in the vicinity where the three pipes are thought to be located. There appear to be masses of petroleum product carried to the water surface by the boils, which upon reaching the surface break up and leave an oily sheen across the river's surface. The oil and grease data submitted by the permittee for the discharge from the oil/water separator does not show concentrations commensurate with these visual observations, so EPA believes that the visually observations may be due to sediments scoured from the outfall pipes.

There is an absorbent boom located just downstream of the point of discharge. According to a conversation with the Massachusetts Highway Department (MHD), the boom was placed by and is maintained by MHD, although it is located upstream of a MHD discharge. It appears most of the product is captured by the boom. However, on one occasion, the entire water surface upstream of the boom had an oily sheen and the sheen appeared to pass under the boom. EPA staff observed the oily sheen down the entire length of the Miller's River. The draft permit

[10] See "Composition of Petroleum Mixtures," Total Petroleum Hydrocarbon Criteria Working Group Series, T.L. Potter and K.E. Simmons, Vol. 2, p.52 (May 1998).

therefore requires the permittee to collect ambient samples to determine whether significant quantities of pollutants are scoured from the pipes during discharge events.

The permittee must develop an ambient sampling plan with 60 days of the effective date of the permit. The sampling plan must be submitted to EPA and MassDEP for review and approval. At a minimum, the permittee shall conduct quarterly ambient sampling for TSS, BOD, fecal coliform bacteria, oil and grease, benzene, and priority pollutants concurrent with effluent sampling for at least two years, and shall include at least 2 dry weather sampling events per year to establish baseline water quality conditions.

VIII. STORM WATER POLLUTION PREVENTION PLAN

Pursuant to Section 304 (e) of the CWA and 40 CFR §125.103(b), Best Management Practices (BMPs) may be expressly incorporated into a permit on a case by case basis where necessary to carry out Section 402(a)(1) of the CWA. The facility and adjacent contributors engage in activities which could result in the storm water discharge of pollutants to waters of the United States. The permit requires each of the co-permittees to develop a Storm Water Pollution Prevention Plan (SWPPP) which will include BMPs appropriate for this specific facility to control storm water discharges from these and other activities which could contribute pollutants to waters of the United States through storm water.

As described earlier, the permittee's understanding of the drainage area and the collection system, treatment system and outfall system is incomplete. Without this understanding a comprehensive SWPPP cannot be completed. Therefore the permit requires that the permittee and co-permittees prepare interim SWPPPs within 90 days of the permit using existing site information and then complete a comprehensive collection and treatment system study within one year of the effective date of the permit. In the collection and treatment system study the permittee and co-permittees shall define the drainage area contributing to the outfall system, map the collection system, provide an estimate of flows running off the site and conveyed by the drainage system, identify necessary drainage system repairs and upgrades, identify the actual design capacity of the existing oil/water separator and propose necessary upgrades to the oil water separator to adequately treat actual flows, and identify the actual discharge capacity of the existing pumping station and outfall system and any necessary upgrades to discharge flows without upstream flooding and unauthorized permitted discharges.

Each of the co-permittees is required to develop the SWPPP within 90 days after the effective date of the permit. The goal of the SWPPP is to eliminate or reduce the potential for discharge of pollutants through the storm water system. In the event the potential cannot be eliminated, the permittee should select BMPs to reduce or eliminate the pollutant loading to the receiving water. The SWPPP requirements direct the permittee and co-permittees (with require to property and facilities under their control) to review the physical equipment, the operation procedures, and the operator training at the facility. The objective of this review is to protect waters of the United States by eliminating or minimizing the potential discharge of any pollutants.

The SWPPP becomes an enforceable element of the permit upon the effective date of the permit. Consequently, the SWPPP is as enforceable as any effluent limits on the discharges.

The SWPPP shall also include maintenance activities to be performed by the MBTA/MBCR at the end of the three 48-inch pipes at the head of the Miller's River. The maintenance activities include:

1. Install booms immediately downstream of the outfalls to the Millers River but upstream of the CA/T discharge,

2. Booms in place at the outfalls shall be maintained to ensure they are in proper working order,

3. Any oil, scum debris, trash, etc. collected around the boom shall be regularly removed and disposed of properly,

4. Boom maintenance shall occur at minimum frequency of once per month,

5. There shall be no discharge of floating solids, visible foam, debris, or oil sheen.

IX. PROPER OPERATION AND MAINTENANCE

Operation and maintenance of the facility and conveyance systems shall be in compliance with 40 CFR Part 122.41 (e) and the General Requirements of Part II.

X. ANTI-BACKSLIDING

Anti-backsliding as defined in Section 402(o) of the Clean Water Act and at 40 CFR §122.44(l)(1) requires reissued permits to contain limitations as stringent or more stringent than those of the previous permit unless the circumstances allow application of one of the defined exceptions to this regulation. For example, anti-backsliding does not apply when changes to limits are based on new information not available at the time of the previous permit reissuance (40 CFR §122.44 (l)(2)(i)(B)(1)) or when limits are changed as a result of material and substantial additions or alterations to the permitted facility which occurred after permit issuance which justify the application of less stringent limitations, as defined 40 CFR § 122.44 (l)(2)(i)(A).

XI. ANTIDEGRADATION

The Massachusetts Antidegradation Policy is found at Title 314 CMR 4.04. All existing uses of the Millers River must be protected. This draft permit is being reissued with allowable discharge limits as or more stringent than the current permit with the same parameter coverage. There is no change in outfall location.

XII. MONITORING AND REPORTING

The co-permittees are obliged to monitor and report sampling results to EPA and the MassDEP within the time specified in the permit. The effluent monitoring requirements have been established to yield data representative of the discharge by the authority under Section 308(a) of the CWA in accordance with 40 CFR 122.441(j), 122.44, and 122.48.

The remaining general conditions of the permit are based primarily on the NPDES regulations 40 CFR 122 through 125 and consist primarily of management requirements common to all permits.

XIII. STATE CERTIFICATION REQUIREMENTS

EPA may not issue a permit unless the State Water Pollution Control Agency with jurisdiction over the receiving waters certifies that the effluent limitations contained in the permit are stringent enough to assure that the discharge will not cause the receiving water to violate State Surface Water Quality Standards. The staff of the Massachusetts Department of Environmental Protection is reviewing the draft permit and will determine if the limitations are adequate to protect water quality. EPA has requested permit certification by the state pursuant to 40 CFR 124.53 and expects that the draft permit will be certified.

XIV. PUBLIC COMMENT PERIOD AND PROCEDURES FOR FINAL DECISION

All persons, including applicants, who believe any condition of the draft permit is inappropriate must raise all issues and submit all available arguments and all supporting material for their arguments in full by the close of the public comment period, to the U.S. EPA, Office of Ecosystem Protection, MA Unit, One Congress Street, Suite-1100, Boston, Massachusetts 02114. Any person, prior to such date, may submit a request in writing for a public hearing to consider the draft permit to EPA and the State Agency. Such requests shall state the nature of the issues proposed to be raised in the hearing. Public hearings may be held after at least thirty days public notice whenever the Regional Administrator finds that response to this notice indicates a significant public interest. In reaching a final decision on the draft permit, the Regional Administrator will respond to all significant comments and make these responses available to the public at EPA's Boston office.

Following the close of the comment period and after a public hearing, if such a hearing is held, the Regional Administrator will issue a final permit decision and forward a copy of the final decision to the applicant and each person who has submitted written comments or requested notice.

XV. EPA CONTACT

Additional information concerning the draft permit may be obtained between the hours of 9:00 a.m. and 5:00 p.m., Monday through Friday, excluding holidays from:

Michele Cobban Barden
Office of Ecosystem Protection
U.S. Environmental Protection Agency
One Congress Street, Suite-1100 (CMP)
Boston, MA 02114-2023
Telephone: (617) 918-1539
Barden.Michele@epa.gov

Dec. 21, 2006
Date

Linda M. Murphy, Director
Office of Ecosystem Protection
U.S. Environmental Protection Agency